

**U. S. Department of Transportation
Federal Aviation Administration**

**Automatic Data Collection Program
Bar Code Serial Shipping Container Label
*Symbology, Quality, and Format Specification***

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**Prepared by:
Data Capture Institute
260 Washington St.
Duxbury, MA 02331**

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Page 1 of 27

This document supersedes the following FAA documents: None

Table of Contents

- 1.0 Purpose
- 2.0 Reference Documents
- 3.0 Definitions
- 4.0 General Label Specifications
- 5.0 Label Building Blocks
- 6.0 Bar Code Symbology Description
- 7.0 Label Information Zone Contents
- 8.0 Label Size
- 9.0 Label Placement Recommendations
- 10.0 Other Label Considerations

1.0 PURPOSE:

This document describes the attributes of the FAA Serial Shipping Container Label.

This document specifies the application standard for identification codes applied to shipping containers using bar code technology. Shipping containers include cases, cartons, modules, pallets, ocean containers, air containers, trailers, and other handling units found in the logistic support channel(s).

The three core technologies related to shipping containers are identification codes, bar codes, and Electronic Data Interchange (EDI). These three core technologies serve to enable the business functions in the processing of identifying shipping containers and their detailed contents throughout the procurement and delivery cycle. Each has an essential function: identification codes either relate product information or serve as keys to other data, bar codes allow for the automated input of identification codes and other data, and EDI moves the data between contractors and the FAA.

These core technologies enhance business processes for product movement, and because they are internationally compatible, they enable the development of applications that can be utilized by contractors and the FAA within the logistic support channel(s).

Elements of these core technologies include the UCC/EAN SSCC-18 (Serial Shipping Container Code), and UCC/EAN-128 bar code symbology, and ANSI ASC X12 and UN/EDIFACT EDI standards.

2.0 REFERENCE DOCUMENTS:

2.1 From the Uniform Code Council, Inc. (UCC), 8163 Old Yankee Road, Suite J, Dayton, OH 45458.

2.1.1 UCC/EAN Code 128 Application Identifier Standard and periodic supplementary A.I. listings

2.2 From the American National Standards Institute, 1430 Broadway, NY, NY 10018

2.2.1 A.N.S.I. X3.182-1990, Bar Code Print Quality

2.2.2 A.N.S.I. MH10.8M-1993, Bar Code Symbols for Unit Loads and Transport Packages

2.2.3 A.N.S.I. MH10.8.3M-1996, Two-Dimensional Symbols for Unit Loads and Transport Packages

2.3 From the Automatic Identification Manufacturers (AIM), 634 Alpha Drive, Pittsburgh, PA 15238

2.3.1 AIM-BC5, Uniform Symbol Specification for Code-128

2.3.2 AIM Uniform Symbology Specification MaxiCode

2.4 From DODSSP-Customer Service, Standardization Documents Order Desk, 700 Robbins Ave., Bldg 4D, Philadelphia, PA 19111

2.4.1 MIL-STD-129 Marking for Shipment and Storage

2.4.2 MIL-STD-1189 Bar Code Symbology for Code-39

2.4.3 MIL-L-61002 Labels, Pressure sensitive Adhesive for Bar Codes and other Marking

3.0 DEFINITIONS:

3.1 AIM; the Automatic Identification Manufacturers, USA a non-government organization responsible for the coordination of (linear) bar code and 2-D symbology standards.

3.2 ANSI; The American National Standards Institute, a non-government organization responsible for the coordination of voluntary national (United States) standards.

3.3 Application Identifier; is a UCC/EAN-specified numeric prefix(or string of characters) that defines the meaning and purpose of the data element that follows.

3.4 Function Code 1 (FNC 1); is a special character in the Code 128 symbology. When inserted immediately after a Code 128 start code, FNC 1 is reserved to indicate a UCC/EAN-128 application.

3.5 UCC; the Uniform Code Council, Inc. which, in cooperation with the International Article Numbering Association (EAN) in Europe, administers the UCC/EAN system of product identification, serialization codes, Application Identifier standards and associated symbologies throughout the industrial world.

3.6 UCC/EAN-128; is a standard that consists of both a bar code symbology and a data structure. It utilizes the Code-128 symbology and format as specified by the Uniform Code Council. The UCC/EAN-128 data structure is designed so that the meaning of each data field within the bar code is unambiguously defined by a prefix called an Application Identifier (AI). UCC/EAN-128 encodes the Code-128 character "Function Code 1" (FNC-1) as part of the "Start Code" in each printed symbol.

3.7 "X" Dimension; describes the intended width of the narrow bar and space in the bar code symbol. All larger bars and spaces are integer multiples of this dimension.

4.0 General Label Specifications

This section defines the general specifications for constructing Serial Shipping Container labels for use with bar code identification and electronic data interchange. The labeler, the organization responsible for the printing and application of the label, shall mark shipping containers in compliance to this document.

4.1 Label Framework

The label framework is based on the "Common Label" described in the Uniform Code Council, Inc. "Application Standard for Shipping Container Codes of Dec. 1995" and the ANSI Standard "MH 10.8M-1996 for Unit Loads and Transport Packages-Bar Code Symbols".

The label structure is modular and designed to incorporate the requirements of legacy standards and to provide a standard serialization method to link the shipment of unit loads and packages to an electric manifest and Electronic Data Interchange (EDI) transactions.

Within the FAA procurement and delivery process, information may be known and applied at different times. The label may be one single label or multiple labels applied to the shipping container at different times. Generally speaking, the labeler builds the label by combining segments of information at one time or at different times. Each segment is a combination of one or more building blocks which contain a specific piece of information.

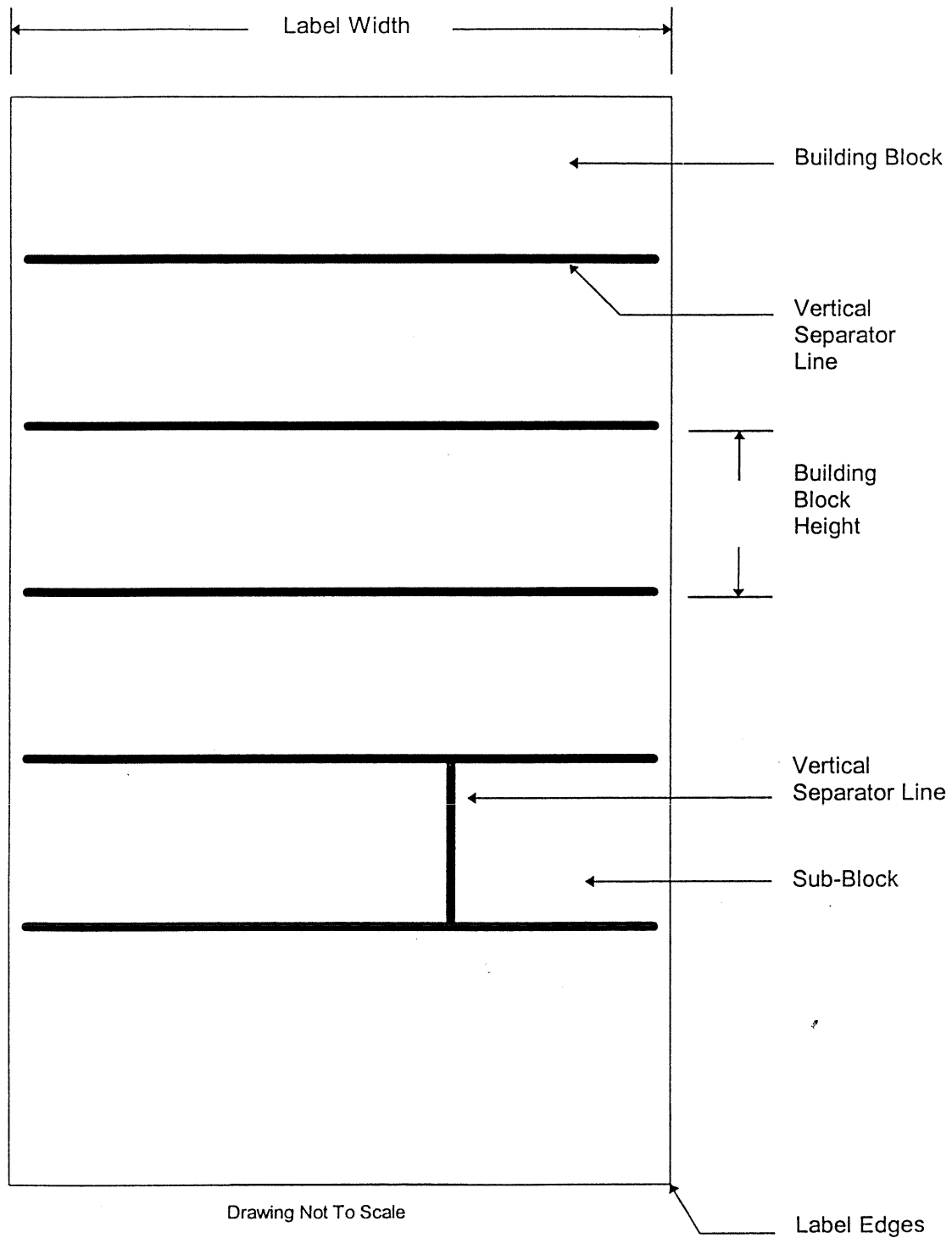


Figure 4.1

Overview of the Label Structure

4.2 Label Segments

A segment is a logical grouping of information that is generally known at a particular time. There are three label segments each representing a group of information. Generally the order of the segments, from top to bottom is: Carrier, Customer, and Supplier/Contractor. However, this order and top/down alignment may vary depending on the size of the shipping container and the business process being served.

4.2.1 Carrier Segment

This segment contains information that is generally known at the time of shipment and primarily, but not exclusively, of interest to the carrier. Typical information found in the carrier segment is: Ship-From, Ship-To, Delivery Postal Bar Code, Carrier Name, Shipment Identification Number, and Carrier Assigned Shipment Number. The carrier segment may also include a MaxiCode symbol.

4.2.2 Customer / Consignee Segment

This segment contains information that is generally known at the time of order or order preparation by the supplier. This information is primarily, but not exclusively, of interest to the customer, that is, the consignee. Typical information found in the customer segment is: Mark-For, Department Number, and Purchase Order/Contract Number.

4.2.3 Supplier Segment

This segment contains information that is generally known at the time of packaging by the supplier. Typical information found in the supplier segment is: National Stock Number, Product Serial Number, Supplier Part Number, and Serial Shipping Container Code unique to the shipping container (which links the contents to an electronic manifest of its contents). In many instances supplier data is of equal importance to both the supplier and customer.

5.0 Label Building Blocks

A building block is the basic unit for label construction.

Building blocks may contain text (including graphics) or bar codes. In addition, they may be subdivided horizontally into sub-blocks to aid in the presentation of label information. Building blocks are separated by a horizontal line, whose length is the width of the building block.

5.1 Building Block Size

The basic building block shall be 1.0 inch \pm 0.2 (25 mm \pm 5) in height as determined by the printing capability of the labeler. The width of the building block shall be the width of the label stock.

Half-height text building blocks may be used at the discretion of trading partners. The half-height block shall be 0.5 in \pm 0.1 (13 mm \pm 2mm).

Two building blocks may be combined into one and one half height block to facilitate automated scanning of machine readable symbols such as bar codes. The height of this double high block shall be 1.5 inches \pm 0.2 (38 mm \pm 5)

5.2 Sub-Blocks

Building blocks may be divided into no more than two sub-blocks. The height of the sub-block is the height of the building block. The width of each sub-block is determined by the data content of that sub-block. Sub-blocks are separated by a vertical line, whose length is the height of the sub-block. A bar code sub-block should be the left-most subblock except in the case of a carrier's sortation symbol.

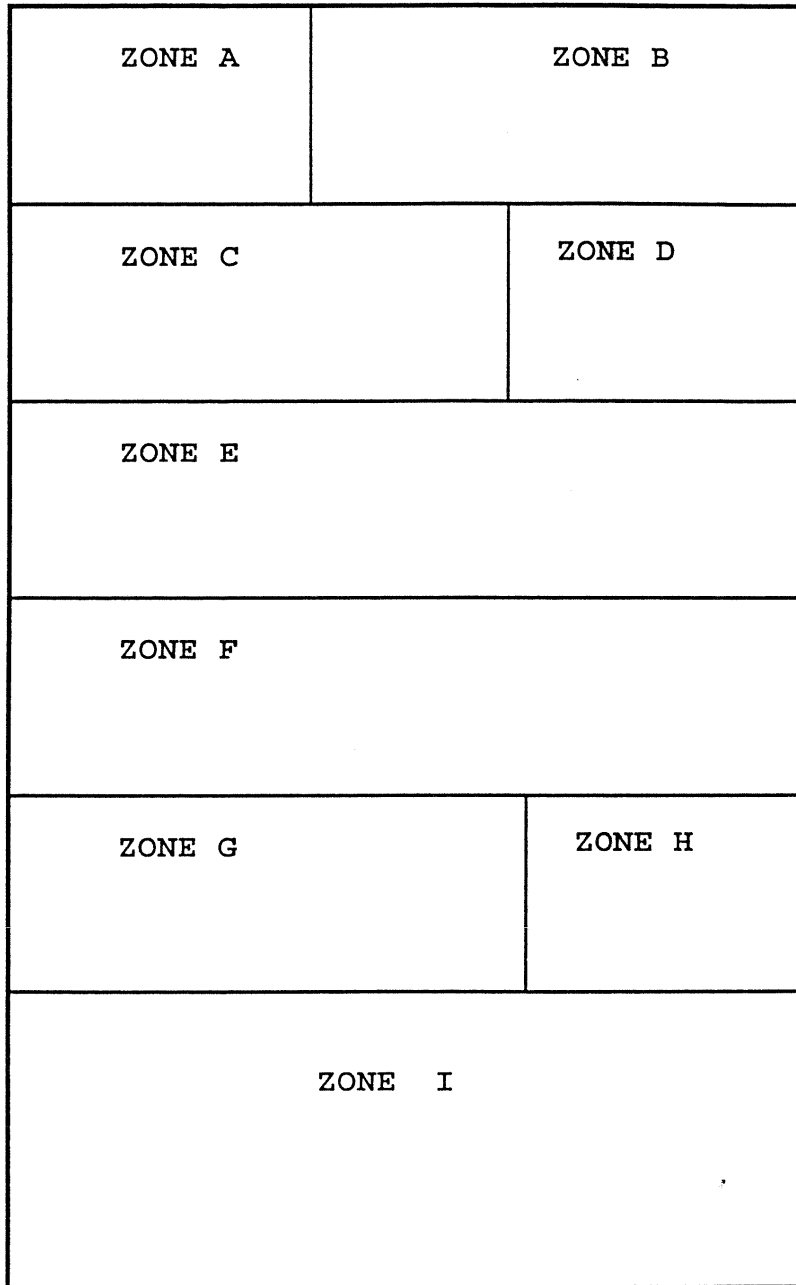


Figure 5.1

FAA Serial Shipping Container Label

Illustrating the Building Block Structure and Data Zone Layout
of a 4.0" X 6.5" Label

5.3 Text Blocks

Text blocks are building blocks or sub-blocks that contain text, graphics, or both. The size and style of the text is a function of the block or sub-block size, amount of data, relative importance of the data and the printing capability of the labeler.

The use of different type fonts, upper case & lower case, and various printers will result in different text height.

5.4 Bar Code Blocks

Bar Code blocks are building blocks or sub-blocks that contain a single bar code. When using UCC/EAN-128 bar codes with Application Identifiers (AI) each block will contain a block title and the human readable representation of the bar code.

In legacy requirements where Code -39 is specified, there will be no Application Identifier.

The title shall be printed in the upper left corner of the block or sub-block. If there is a short title it should be used.

6.0 Bar Code Symbology Description

6.1 Code 128

Code 128 is suitable for encoding general purpose alphanumeric and full ASCII data and provides high information density encodation of numeric data strings. More condensed than Code 39, Code 128 has become the reference symbology for most commercial and industrial standards. All forms of bar code scanners can be used to read Code 128 symbols.

6.2 UCC/EAN Code 128

UCC/EAN-128 is a standard that consists of both a bar code symbology and a data structure. The symbology is a subset of Code 128. The data structure is designed so that the meaning of each data field within the bar code is unambiguously defined by a prefix called an Application Identifier (AI). UCC/EAN-128 is utilized in commercial shipping labels to link the item or container to EDI transactions.

6.3 Code 39

Code 39 (Also called Code 3 of 9) is suitable for encoding general purpose alphanumeric data. Code 39 is the reference symbology for DOD and many industry standards. All forms of bar code scanners can be used to read Code 39 symbols.

6.4 MaxiCode

MaxiCode is a fixed-size, two-dimensional matrix symbology that can encode the entire ASCII and extended ASCII character sets. In addition, MaxiCode has two levels of error detection and correction. A MaxiCode symbol consists of a near square block of hexagonal modules to encode information. Each symbol uses eighteen modules for orientation and contains a central unique Finder Pattern of three dark concentric circles. A two-dimensional imaging device is necessary to scan the symbology. MaxiCode is utilized by United Parcel Service to automate parcel sortation.

7.0 Label Information Zone Contents

A modular structure has been adopted to simplify label formatting. The information zone concept constitutes an overall framework for the presentation of information on the label. Information zones include both human readable and bar code information that is required among business partners involved in the distribution channel. Consistency in the presentation of all information, particularly the Serial Shipping Container Code (SSCC-18) is a key factor in the successful use of FAA Serial Shipping Container Label (SSCL).

Within the SSCL, blocks and sub-blocks have been identified as information zones. Information that may appear on the label is assigned to a particular zone. This allows for the consistent presentation and location of information on the label. In general, if the information assigned to a particular zone is not used, the zone use and contents are at the discretion of the labeler. However, if the information appears on the label, it must be in the zone it has been assigned to.

7.1 Label Information Zone Characteristics

There are nine information zones in the SSCL, labeled A through I. Each zone will have one of the following three characteristics:

7.1.1 Mandatory Zones

Data prescribed for this zone will be on the label in the specified zone.

7.1.2 Conditional Zones

If any of the data prescribed for this zone is required, it will in the specified zone.

If the data prescribed for that zone is not required, the zone will become an optional zone.

FROM ZONE A	TO ZONE B	
SHIP TO POST ZONE C		CARRIER ZONE D
CONTRACT # ZONE E		
NSN ZONE F		
CONSIGNEE ZONE G		ZONE H
SSCC-18 ZONE I		

Figure 7.1

FAA Serial Shipping Container Label
 Illustration of 8 point, bold Zone Titles
 within a 4.0" X 6.50" Label

FROM ZONE A	TO ZONE B
CARRIER ZONE D	
SSCC-18 ZONE I	

Figure 7.2

FAA Serial Shipping Container Label employed as a
LIS/BCATS Exchange & Repair Transaction Shipping Label
Illustration of Zone Titles within a 4.0" X 4.0" Label

Note: When shipping standard pallets in full trailers the minimum requirement for identification is the SSCC-18. The manifest, bill of lading, or a SSCC-18, for the trailer will contain information needed to deliver the trailer. Therefore, Zone A (Ship From) and Zone B (Ship To) are conditional for full trailer shipments and mandatory for all other shipments.

7.1.3 Optional Zones

Trading partners determine the data presentation and content for optional zones. Generally, customer related data should appear above supplier related data within optional zones or blocks.

Optional zones can be omitted from the label. Optional zones that are next to each other within a block may be combined and later divided into sub-blocks. Optional zones that are above or below each other can be combined into one double high block.

7.2 Label Information Zone text

Size specifications for text data is represented in points.

7.3 Label Information Zone Titles

All zones, except for optional zones, will have a zone title that denotes the information contained within the zone. Zones containing bar codes will use the AI short titles. All zone titles will be placed in the upper left corner of the zone and will have a size of 4 to 8 Pts.

7.4 Label Information Zone Specifications

7.4.1 Zone A, Ship From

Zone Title: FROM

Height: 1.0 (\pm 0.2) inch

Width: 1.50 (\pm 0.2) inch

Characteristic: Conditional (Full Truckload)

Mandatory (All Other)

General Content: Text Only

Data Content: Ship From name and address (May include logo).

Text Size: 8 to 10 Pts.

7.4.2 Zone B, Ship To

Zone Title: TO

Height: 1.0 (\pm 0.2) inch

Width: 2.50 (\pm 0.2) inch

Characteristic: Conditional (Full Truckload)

Mandatory (All Other)

General Content: Text Only

Data Content: Ship to name and address.

Text Size: 12 to 14 Pts.

7.4.3 **Zone C, Carrier Routing Bar Code**

Zone Title: Short Title of A1 used. (Postal Code)

Height: 1.0 (\pm 0.2) inch

Width: 2.5 (\pm 0.2) inch

Characteristic: General Content: Text and/or Bar Code with HRI

General Content: Text and/or Bar Code with HRI

Data Content: Ship to Postal Bar Code or

PRO Number Bar Code

General Content: Text and/or Bar Code with HRI

Bar Code: UCC/EAN-128 with appropriate A.I.

(A.I. 420 for Postal Code)

Bar-code Height: 0.5 inch (minimum)

X Dimension: 0.010 inch (minimum), .015 inch Recommended

7.4.4 **Zone D, Carrier**

Zone Title: **CARRIER**

Height: 1.0 (\pm 0.2) inch

Width: 1.5 (\pm 0.2) inch

Characteristic: Conditional

General Content: Text and/or Bar Code, or 2-D Sortation Symbol

Data Content: Carrier Name, SCAC Bill of Lading Number (B/L: xxxxxxxx),

PRO Number (PRO: xxxxxxxx), Carrier Assigned Package ID (PKG ID:

xxxxxxx), Carrier Assigned Shipper ID (SHPR ID: xxxxxxxx)

Transportation Control Number (TCN)

Text Size: 10 to 16 Pts.

Note: This Zone may be combined with Zone C by omitting the vertical partition.

7.4.5 Zone E, Contract or Purchase Order Number

Zone Title: (Contract #)

Height: 1.0 (\pm 0.25) inch

General Content: Text and/or Bar Code with HRI

Characteristic: Conditional

Data Content: The marking of shipping containers and packages

with the Contract Number (17 alphanumeric characters) or the FAA Purchase Order Number, or Procurement Instrument (PIIN) may be a contractual requirement of the purchase agreement and defined in one or more of the reference documents listed in section 2.4.

Both bar code and text data may appear in this zone.

Bar Code: UCC/EAN-128 with appropriate A.I.

(A.I. 400 for Contract Number,

A.I. 400 for FAA Purchase Order Number)

or as an alternate

Code 128, or

Code 39,

Bar-code Height: 0.5 inch (minimum)

X Dimension: 0.010 inch (minimum), .015 inch Recommended

H.R.I.: .094 inch (minimum) to .20 inch

7.4.6 Zone F, National Stock Number

Zone Title: NSN

Height: 1.0 (\pm 0.2) inch

Characteristic: Conditional

General Content: Text and/or Bar Code with HRI

Data Content: The marking of shipping containers and packages

with the packaged item's NSN (13 numeric characters) may be a contractual requirement of the purchase agreement and defined in one or more of the reference documents listed in section 2.4.

Both bar code and text data may appear in this zone.

Bar Code: UCC/EAN-128 with appropriate A.I.

(A.I. 241 for NSN)

or as an alternate

Code 128, or

Code 39 (Legacy requirement)

Data Content: 13 numeric characters

Bar-code Height: 0.5 inch (minimum)

X Dimension: 0.010 inch (minimum), .015 inch Recommended

H.R.I.: .094 inch (minimum) to .20 inch

7.4.7 Zone G, Consignee, or Final Destination

Zone Title: (CONSIGNEE or FOR)

Height: 1.0 (\pm 0.2) inch

Width: 2.5 (\pm 0.2) inch

Characteristic: Conditional

General Content: Text and/or Bar Code with HRI

Data Content: Final Destination Code

May be large human readable for location number (for example, store number) or bar code for location number (for example, store number). The location may identify the ship to in a post-distribution environment or the ship (mark) for location in a pre-distribution environment. Conveyor scanning applications may require a bar code height greater than the minimum.

Bar Code:

Bar-code Height: 0.5 inch (minimum)

0.75 inch (automated sortation)

X Dimension: 0.015 inch (minimum),

to 0.025 inch (for automatic sortation)

7.4.8 Zone H, for Optional Use

Zone Title:

Height: 1.0 (\pm 0.2) inch

Width: 1.5 (\pm 0.2) inch

Characteristic: Conditional

General Content: Text and/or Bar Code with HRI

Data Content:

Text Size: 12 to 72 Pts

7.4.9 Zone I, SSCC-18 Bar Code

Zone Title: **SSCC-18**

Height: 1.5 (\pm 0.4) inch

Characteristic: Mandatory

Data Content: Serial Shipping Container Code

Bar Code: UCC/EAN-128 SSCC-18 Symbology, Format and Data Content

Bar-code Height: 1.2 inch (minimum)

X Dimension: 0.020 inch (minimum)

H.R.I.: .20 inch

8.0 Label Size

The height of the label shall be determined by the number of building blocks included on the label.

The width of the label shall be determined by the physical width of the label stock used and the placement of the label segments. The physical dimensions of the label shall be determined by the labeler.

The recommended label size for the FAA Serial Shipping Container Label is 4 inches (109 mm) wide by 6.5 inches (165 mm) tall.

In order to fit all nine zones within the 4 by 6.5 inch requirement, Zones A through H may have a height of 0.8 inch. In many applications all of the zones are not used. As an example, if Zone F is omitted, Zones E through H may be enlarged for supplier data and final destination bar code.

Although the 4 by 6.5 inch label will accommodate many transport package heights there will be instances where it will not. Labelers who use small transport packages whose height can not accommodate the 4 by 6.5 inch label may require the zones to be arranged in a manner that will accommodate the wide variety of containers they use. Therefore, label widths may be increased to accommodate side by side zone placement. In addition, the zones may appear on multiple labels and placed on the transport package.

All zones on any physical label shall appear in the same order as in the Figure 5.1. An example of one alternate label size is given in Figure 7.2, a 4 by 4 inch label.




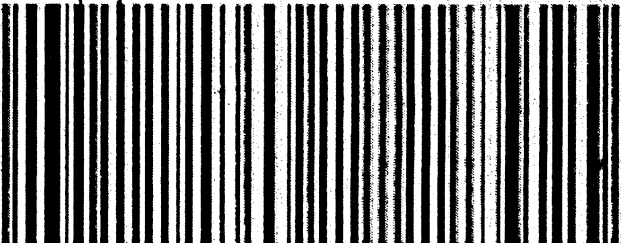
FROM NE STAGING AREA DOT / FAA ANE - 4550 BLDG 1040 HANSCOM AFB BEDFORD, MA 01750		TO DATA CAPTURE INSTITUTE 260 WASHINGTON STREET BUILDING 2 DUXBURY, MA 02331	
POSTAL ZIP (420) 02331 		CARRIER BEST FREIGHT PRO: 1234567890 B/L: 123456	
CONTRACT # (400) 12345678901234567 			
NSN (241) 1234567890123 			
FOR CONFIGURATION DEPT		F2	
SSCC - 18 (00) 0 0123456 000000009 4 			

Figure 8.1

FAA Serial Shipping Container Label

Illustrating 4.00" X 6.50" Label with UCC/EAN-128 Bar Codes

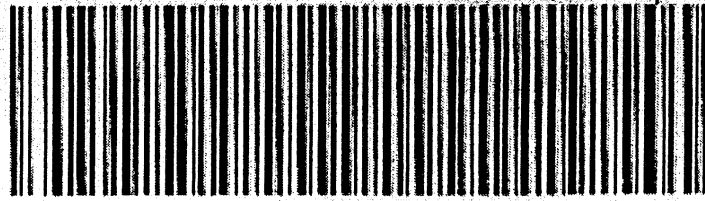
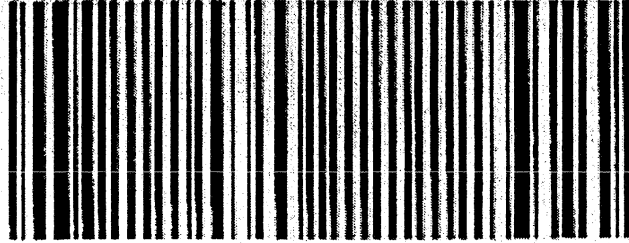
FROM NE STAGING AREA DOT / FAA ANE - 465G BLDG 1840 HANSCOM AFB BEDFORD, MA 01730	TO DATA CAPTURE INSTITUTE 260 WASHINGTON STREET BUILDING 2 DUXBURY, MA 02331
CARRIER	Tracking Number
1Z 649 544 08 1001 328 4	
	
SSCC - 18	(00) 0 0123456 000000009 4
	

Figure 8.2

FAA Serial Shipping Container Label employed as a
 LIS/BCATS Exchange & Repair Transaction Shipping Label
 Illustrating a 4.0" X 4.0" Label with
 a Code-128 Carrier Tracking Code
 & the UCC/EAN SSCC-18 Serial Shipping Container Code

FROM NE STAGING AREA DOT / FAA ANE - 4556 BLOG 1840 HANSCOM AFB BEDFORD, MA 01730		TO DATA CAPTURE INSTITUTE 260 WASHINGTON STREET BUILDING 2 DUXBURY, MA 02331	
POSTAL ZIP (420) 02331 		CARRIER BEST FREIGHT PRO: 1234567890 B/L:123456	
CONTRACT # (400) 12345678901234567 			
NSN (241) 1234567890123  (241) 2234567890133  (241) 2234567890443 			
SSCC - 18 (00) 0 0123456 000000009 			

Figure 8.3

FAA Serial Shipping Container Label

Illustrating 4.00" X 6.50" Label with Multiple NSN's

(Note that the NSN's in this example are encoded in UCC/EAN-128)

9.0 Label Placement Recommendations

If all of the zones used appear on one physical label, the placement of the label will be dictated by the location requirements of the SSCC-18 as specified in Section of this document.

The UCC Common label may be composed of multiple physical labels, because different zones of the label may be applied at different points in time. All zones should be on the same side as the SSCC-18, and the relative order of the zones should be maintained. However, placement of the zones will be consistent with the use of the information within the supply chain.

10.0 Other Label Considerations

10.1 Automated Scanning

The minimum size specifications for UCC/EAN-128 bar codes other than the SSCC-18 is 0.5 inch height at a 0.010 inch X dimension (.015 recommended). While this specification will allow hand scanning it may not provide for accurate automated scanning. Therefore, it is suggested that for automated applications block sizes of at least 1.2 inches be used with a symbol height of .75 inch and an X dimension of at least 0.0148 inches.

10.2 Small Package Service Carriers

It may be desirable to place an additional bar code on the label that will facilitate the routing of the package within a small package service provider's facilities. Zones E and F may be combined to place a large bar-code to accommodate this.

Since label real estate is in demand, an additional label that contains the small package service provider's automated routing requirements may be placed elsewhere on the transport package, for example on the top.